A.4.13 AOC 13

Description

AOC 13 consists of the B-11 Oily Fill Area, located on the northeast side of the EYB, less than 50 feet from the Arthur Kill. This area was identified as an AOC in 1991 during a groundwater quality assessment, based on the identification of petroleum stained fill in a single boring located in the northeastern edge of the East Yard. During the assessment, petroleum staining and contamination was identified in the 6.0 to 6.5-foot interval of boring B-11.

As shown on Figure A.4.10, and summarized on Table A.4.10 data from ten borings, seven soil samples, one monitoring well sample, one hydropunch sample, and three temporary piezometers have been used to characterize this AOC. In addition, relevant data from SWMU 8 and SWMU 25 are also shown on Table A.4.10 for delineation purposes. One boring, two temporary piezometers, and one hydropunch sample were installed during the 1st-Phase RFI, and one soil sample was submitted to the laboratory for TPH GC fingerprint analysis. During the Full RFI, six soil samples collected from two borings and analyzed for TCL VOCs and SVOCs,and TAL metals.

Soil

Based on the presence of stained soils and the boring logs obtained from the area, Chevron installed a temporary piezometer (A13TP1) during the Full RFI to determine if free phase hydrocarbons were present. A13TP1 was installed and allowed to equilibrate for a period of two weeks. No free phase hydrocarbons were observed during this period.

The following table summarizes the number of samples where the delineation criteria were exceeded:

Constituents of Concern	Surface Soils (0 to 2 ft)	Fill Material (>2 to ft)	Native Soils	Total
Benzene	0/2	0/3	0/1	0/6
Other VOCs	0/2	0/2	0/1	0/6
Benzo(a)pyrene	0/2	0/3	0/1	0/6
Other SVOCs	0/2	1/3	0/1	1/6
Lead	0/2	0/3	0/1	0/6
Other TAL Metals[a]	0/2	1/3	1/1	2/6

[a]Totals do not include naturally-occurring metal compounds in excess of the delineation criteria (Al, Ca, Fe, Mg, Mn, K and Na).

Surface soils (0 to 2 feet bgs)

No staining, odors or other evidence of petroleum impacts were observed in surface soils at AOC 13. There were no exceedances of the applicable soil delineation criteria in either of the two surface soil samples, except for naturally-occurring iron.

Fill Materials (>2 feet bgs)

Staining, odor, and other evidence of petroleum-related impacts were observed in the subsurface fill material, which ranges in thickness from approximately 10 feet to at least 28 feet (at A13TP1) in and around AOC 13. Although benzene (1.1 mg/kg) and bis(2-ethylhexyl)phthalate (58 mg/kg) were detected above the most conservative soil delineation criteria in one soil sample (S1420D4 at 7.5 to 8 feet bgs), this sample was collected from the saturated zone, so the IGWSCC (1 mg/kg) for benzene is not applicable, and this low concentration of benzene is below the RDCSCC (3 mg/kg). The presence of bis(2-ethylhexyl)phthalate could be an artifact of sampling and/or analytical procedures, as this compound is found in many plastics. With the exception of naturally-occurring iron, arsenic (20.5 mg/kg) was the only metal to be detected slightly above the soil delineation criterion for arsenic (20 mg/kg) in one of the subsurface fill samples (S0862N1). Arsenic (20.5 mg/kg) is well within the normal range for soils, particularly glauconitic soils in the Coastal Plain (Saunders, 2003).

Native Material

A silty clay/peat layer underlies the fill material in this part of the Refinery. In general, the peat layer is approximately 10 to at least 20 feet bgs. There were no exceedances of the applicable soil delineation criteria in the native sample (S1420F4), except for arsenic (31 mg/kg) and naturally-occurring iron (73,200 mg/kg). As noted above, arsenic (31 mg/kg) is well within the normal range for soils, particularly glauconitic soils in the Coastal plain (Saunders, 2003).

Groundwater

Although numerous metals were detected above the applicable groundwater criteria in the hydropunch sample (HP0016) collected during the 1st-Phase Groundwater Investigation, this sample was collected using traditional hydropunch methodology, and is not considered to be representative of ambient groundwater conditions. There were no exceedances of the groundwater criteria in the groundwater sample collected from SB-15 in January 2003. Therefore, there is no evidence that the petroleum-impacted soils observed at AOC 13 are impacting groundwater.

Surface Water/Sediment

As part of the full RFI, one surface water sample and one sediment sample were collected from the Arthur Kill, adjacent to AOC 13 (Transect 13). As summarized on Table A.4.10, and further discussed in Section 9, although PAHs and metals were detected in excess of the applicable sediment screening criteria in the sediment sample from Transect 13, it does not appear that Arthur Kill has been impacted by AOC 13 because the COCs detected in these samples were also detected in the upgradient sample from the Arthur Kill.

Conclusions

Although petroleum-impacted soils have been observed at AOC 13, the analytical data for soil, groundwater, sediment and surface water indicate that there has been little, if any impacts to either groundwater or the Arthur Kill from AOC 13. Therefore, no further action is recommended for this AOC.